Written
Testimony of

Federal Home Loan Bank
of San Francisco

On

Federal Home Loan Bank
Unsecured Investments

For The

Federal Housing Finance Board
Public Hearing on Federal Home Loan Bank
Unsecured Investments

March 12, 2003
Washington, D.C.

Introduction

The Federal Home Loan of San Francisco (Bank) received an invitation from Chairman John Korsmo on February 18, 2003 to present testimony for a public hearing on March 12, 2003 regarding unsecured lending by FHLBanks. The purpose per the invitation is to supplement the thorough briefing the Chairman has received from his staff on FHLBank unsecured credit extensions by gathering additional facts and information about the functioning of the markets for overnight and term unsecured credit, the nature of FHLBank involvement in those markets, the business objectives accomplished through extensions of unsecured credit, and the practices and methods used by each Bank to conduct unsecured lending in a prudent manner. The invitation specifically welcomed testimony about the FHLBank objectives and practices. The Bank is providing testimony regarding the mission and business objectives served by the unsecured investment portfolio and the risk management practices undertaken by the Bank that supplement the requirements in the FHFB unsecured credit regulation at CFR 932.9. We also encourage you to review the materials and public record produced during the promulgation of the FHFB unsecured credit regulation at CFR 932.9 published in December, 20021.

The Business Objectives of the Bank's Non-MBS Investments

The subject of the hearing by the Finance Board, "unsecured lending", is a synonym for unsecured investments. The Bank makes short-term unsecured investments and secured investments, collectively called non-MBS investments, to meet four primary business objectives:

- Enhance earnings and lever unused capital
- Meet operating liquidity needs to most effectively fund member advances
- Meet contingent operating and member liquidity needs
- Source of unsecured credit for qualifying members

The secured non-MBS investments combined with the unsecured investments serve to meet the liquidity and other objectives of the non-MBS investment portfolio. Each of the four business objectives and how non-MBS investments are used to achieve the business objectives is discussed below.

Composition of Non-MBS Investment Portfolio During 2002

Below is a summary of the composition of the non-MBS investment portfolio during 2002 compared to yearend 2002 and observations regarding how and why the composition changed during 2002.

Investment Types – Average 2002 Balance and Balance as of December 31, 2002

Investment Type	Terms	Balance (dollars in billions) 2002 Avg. Bal.	12/31/02	% of Total
Overnight Fed Funds – Members	Overnight	$ 0.4	$ 0.0	0.0%
Term Fed Funds – Members	To 9 months	0.2	0.0	0.0
Certificates of Deposit – Members	To 9 months	0.4	0.5	2.8
Subtotal Investments – Members		$ 1.0	$ 0.5	2.8%
Overnight Fed Funds – Nonmembers	Overnight	$ 1.9	$ 1.4	7.9%
Term Fed Funds – Nonmembers	≤ 3 months	4.3	4.7	26.6
Certificates of Deposit – Nonmembers	≤ 3 months	4.0	4.3	24.3
Commercial Paper – Nonmembers	≤ 3 months	2.4	1.3	7.3
Subtotal Unsecured Invest's – Nonmembers		$12.6	$11.7	66.1%
Resale Agreements – Nonmembers	≤ 3 months	$ 2.7	$ 4.4	24.9%
Housing Finance Agency Bonds (AAA)	Multi-year	1.0	1.1	6.2
Subtotal Secured Invest's – Nonmembers		$ 3.7	$ 5.5	31.1%
Total Non-MBS Investments		$17.3	$17.7	100.0%

Observations regarding how and why the composition of investment types changed during 2002

- The Bank reduced the unsecured credit limits available to members and non-members pursuant to the Finance Board's most recent regulation on unsecured credit that became effective in March 2002. The lower credit limits resulted in lower outstanding balances of unsecured investments with members after March 2002.

- The Bank uses secured short-term resale agreement transactions along with short-term unsecured investments to accomplish its business objectives when the yield on the resale agreement transactions approximates the yield on unsecured investments. The Bank increased the balance of secured resale agreement transactions (collateralized by agency-guaranteed MBS) during the second half of 2002, taking advantage of the mortgage-refinancing boom that increased dealers' inventories of agency-guaranteed MBS for which they need short-term financing.

- The Bank continued to invest in AAA-rated mortgage revenue bonds issued by housing finance agencies in the 11th District during 2002. These intermediate-term mortgage revenue bonds are secured by the underlying mortgage loans, mostly FHA and VA loans. The Bank plans to increase its investment in these securities to further its achievement of the housing mission.

Meet Operating Liquidity Needs to Most Effectively Fund Member Advances

The Bank's primary role, to provide liquidity and secured credit to its members, is one component of the Bank's overall operating liquidity needs. Other components of operating liquidity needs include normal or expected member deposit withdrawals, maturing debt obligations, payments due on derivatives and other commitments, and capital stock redemptions.

Issuance of consolidated obligation discount notes (DNs) and bonds (CO bonds) are the primary sources of low-cost liquidity and financing for Bank assets. However, there are several reasons why it is necessary and prudent for the Bank to maintain ***on-balance-sheet*** sources of liquidity to meet member liquidity/credit needs and to satisfy the regulatory requirements for operating liquidity:

> ***There are structural limitations to the agency debt market's ability to provide "immediately available funds" for member liquidity/credit needs.***
>
> The DN market is open from roughly 6:30 a.m. PT to 12:30 p.m. PT, with a large portion of DNs issued for same-day settlement. The Bank's advance window is open until 2 p.m. PT. Requests for advances for same-day funding that are received after the DN markets are closed, which are numerous, can only be funded via other sources of immediately available liquidity. Also, CO bonds settle from two days to three weeks after the commitment to issue the bonds so they don't have an immediate liquidity benefit.
>
> Recognizing the need for "immediately available funds", the Bank maintains $1 billion or more of overnight federal funds sold on a daily basis to meet potential member requests for same-day credit/liquidity (overnight investments represent an "immediately available" source of liquid funds on the day they mature). Also, the overnight federal funds market operates until 3:30 p.m. PT, which allows the Bank to invest any funds not lent to members after the advance window closes at 2 p.m. PT. Overnight resale transactions are a secured overnight investment instrument the Bank does not use because the market for that investment is liquid only until about 9 a.m. PT and it closes at 11:30 a.m. PT, well before the Bank's advance window closes. Maintaining "immediately available" liquidity on-balance-sheet is critical to the Bank's performance as a reliable cost-effective day-to-day liquidity provider to its members.
>
> ***Short-term investments are integral to strategies to issue System debt at the lowest costs.***
>
> The 2002 study by the System's Debt Cost Task Force concluded that debt issued less frequently or issued in the form and at the times when investors desire it (which may require hedging strategies and/or temporary reinvestment of debt proceeds) often avoids a

significant cost premium associated with the flexibility to issue a wide range of types, terms, and amounts of debt daily.

The Bank forecasts member credit needs and debt repayment obligations over various planning horizons. By doing so, the Bank can opportunistically issue new short-term and intermediate-term debt in the form and at the times when investors most desire it. The proceeds might not be immediately needed to fund advances or MPF loans or to repay maturing debt. Such proceeds are placed into liquid short-term investments until needed in these cases. This “debt warehousing” activity is an integral part of the “portfolio funding” strategy used by the Bank for advances.

A "portfolio funding" strategy separates the management of the interest rate risk of assets from the financing/funding of the assets. In contrast, debt that match-funds an asset manages both the interest rate risk and provides the funding for the asset. The Bank hedges the interest rate risk of advances at the time they are committed, if necessary, as part of its "portfolio funding" strategy, which enables the Bank to make immediate commitments for advances when requested by members. The Bank then can finance/fund the advance with a variety of debt instruments, which gives the Bank flexibility to opportunistically issue low-cost debt at the time and in amounts the market makes available. "Portfolio funding" also involves managing the net interest rate risk and net maturity mismatches of the aggregate portfolios of advances and related debt. These portfolio net risk positions can be managed with cash instruments (e.g., short-term investments and discount notes) or interest rate derivatives.

We estimate the Bank’s “portfolio funding” strategy for advances reduced aggregate debt costs by <u>***$33 million***</u> in 2002 versus the cost of “match-funding” advances as the member requests are received (an average savings of nearly 4 basis points in the debt cost for the average balance of $90 billion of advances). This cost savings is passed through to the member-borrower either in the form of lower advance rates or in the form of higher dividends. The debt cost savings from “portfolio funding” excludes the net interest income earned on the short-term investments used to temporarily “warehouse” low-cost debt.

The financial effects of potential changes to the Banks’ unsecured investment authorities considered by the Finance Board should include an increase in debt costs if such changes would reduce the Bank’s (System’s) ability to “warehouse” opportunistic debt issuance or utilize “portfolio funding” strategies. Any significant reduction in the Bank’s (System’s) short-term unsecured investment capabilities may offset the progress that has been made in reducing the cost of certain sectors of the System’s debt since the issuance of the Debt Cost Task Force Report.

Short-term investments are an integral tool to achieve certain interest rate risk and asset/liability management objectives.

The Bank manages various types of differences between member advances (or other assets) and the debt that finances those assets. The differences include funding/settlement dates, maturity dates, amounts, and interest rate characteristics. These differences

represent various types of interest rate risk such as funding risk, refinancing risk, and repricing risk. These risks can be managed effectively either with cash instruments (e.g., short-term investments and DNs) or with interest rate derivatives. Usually it is significantly more cost-effective to manage short-term interest rate risks with short-term investments and DNs than with interest rate derivatives.

For example, assume a member wants an adjustable-rate advance indexed to 1-month LIBOR but the Bank can issue debt indexed to 3-month LIBOR. Left unmanaged, the difference in repricing indices for the adjustable-rate asset and debt exposes the Bank to repricing risk. The Bank can manage the risk by issuing 1-month DNs and investing in 3-month investments or execute an interest rate swap where the interest receipt is indexed to 3-month LIBOR and the interest payment is indexed to 1-month LIBOR. Managing that repricing risk with DNs and short-term investments typically avoids an out-of-pocket transaction cost of 3-4 basis points per annum for the short-term interest rate swap. While seemingly a small cost, the Bank estimates that it avoids hedging costs of roughly $1.8 million to $3.6 million annually by using DNs and short-term investments for its short-term repricing risk management (avoiding on average $6 to $9 billion of such interest rate swaps annually).

The above example is just one way in which short-term debt and short-term investments are used in interest rate risk management and asset/liability management. There are other uses as well (e.g., to manage the risks of guaranteed-rate forward-settling advances). Like the "portfolio funding" strategy described above, the financial effects of any potential changes to the Banks' unsecured investment authorities considered by the Finance Board should include an increase in hedging costs if such changes reduce the Bank's (System's) ability to manage certain interest rate risks using short-term investments.

Meet Contingent Operating and Member Liquidity Needs

The Bank has developed and maintains a contingent liquidity plan that is designed to meet the liquidity needs of members and meet the Bank's other obligations and commitments such as paying off maturing debt in the event of certain business or capital market disruptions. The business disruptions contemplated by the contingency plan include:

- An operational disruption at the Bank or the Office of Finance that prevents the Bank from issuing new debt and/or receiving the proceeds of such debt issuance, and
- A short-term capital markets disruption (e.g., the disruption in the ability to issue DNs during the week of 9/11/01)

The Bank's contingent liquidity plan incorporates the Finance Board's regulatory requirement for the Bank to be able to meet its obligations in the event we are unable to issue new DNs or CO bonds for up to 5 business days (i.e., in the event of a short-term capital markets disruption). If a capital markets disruption interrupts the Bank's (System's) ability to issue DNs and CO bonds, then it is uncertain whether the Bank will be able to borrow in the MBS repo markets from dealers, borrow unsecured fed funds in the money markets, or sell liquid money market investments into the secondary market. We believe the most reliable source of liquidity when DNs and COs cannot be issued due to a capital markets disruption is the scheduled repayment of maturing short-term investments.

It is fairly straightforward to estimate how much on-balance-sheet liquidity is needed to meet contingency liquidity requirements for various periods of time. The volume of debt maturities in a given time period can be used to measure the amount of short-term investments that would be needed to pay off those maturing COs during a capital markets disruption (paying off maturing COs with maturing investments enables the Bank to roll over all maturing advances during that same time without raising any new funds).

During 2002 the Bank had average monthly debt maturities of $12 billion and peak monthly maturities in February 2002 of $20 billion. This means that the Bank could have expected average and peak debt maturities within a 5 business day period of roughly $3 billion and $5 billion, respectively, in 2002. If the entire short-term investment portfolio is regularly reinvested to create a smoothly laddered portfolio of maturing short-term investments, then the Bank has a regular scheduled inflow of liquidity from maturing investments to payoff maturing debt when a capital market disruption occurs. Therefore, the total size of the short-term investment portfolio needed to meet contingency liquidity needs is a function of the average/peak debt maturities in a given time period and the term to maturity of the short-term investments. This concept is illustrated as follows:

Amount of Maturing Debt to Pay Off Over 5 Business Days	Total Size of Short-Term Investment Portfolio Needed for Contingent Liquidity if Term of Investments is* 1 Month
$3 billion	$8 billion
$5	$16

* Assumes the first $1 billion of maturing investments used to pay off maturing debt comes from maturing overnight investments; the remainder of required maturing investments are short-term.

Historical measurements have shown the Bank would have been able to pay off maturing debt solely with maturing investments for more than five business days in the event of a capital markets disruption. The Bank's short-term investment portfolio, secured and unsecured investments with original terms of 3 months or less, averaged just over $16 billion in 2002 (excludes investments in HFA mortgage revenue bonds) and that portfolio of liquidity investments provided a strong contingency liquidity cushion for the Bank in the event that a capital markets disruption occurred that lasted several days.

Enhance Earnings and Lever Unused Capital

The Bank has designed its financial management policies and strategies to enable the balance sheet to grow and shrink with the level of member advance demand, without a significant change in the relative financial performance (i.e., the dividend rate) of the Bank.

The Bank's Board of Directors adopted two policies several years ago to manage the Bank's leverage, limit the Bank's aggregate non-MBS investments and therefore limit the aggregate amount of unsecured non-MBS investments:

- A policy to redeem surplus stock on a quarterly basis (surplus stock greater than 115% of stock requirement excluding current year stock dividends).

  Capital leverage is maintained via stock redemption rather than simply adding non-MBS investments. The Bank redeemed $1.9 billion of stock in 2002 as advances demand declined, rather than levering the capital stock with additional non-MBS investments.

- A policy to govern the maximum amount of non-MBS investments equal to, 1) one times capital plus, 2) one times member deposits, plus, 3) 10% of CO outstanding.

  This policy formula is consistent with a framework developed by the Finance Board in the late 1990's for the maximum amount of non-MBS investments Banks should hold consistent with their federal agency status and housing mission. The Board policy resulted in a lower limit on the 2002 average balance of all types of non-MBS investments ($18.3 billion) than the regulatory 11%-of-assets limit for non-mortgage assets, net of capital and deposits, in 2002 ($20.1 billion).

The Bank will seek to maximize leverage of capital within these overall regulatory and Board policy constraints. To the extent that leverage is not maximized through advances, MPF, MBS, and investments in HFA mortgage revenue bonds, the Bank will undertake additional non-MBS investments not otherwise needed for operating liquidity purposes to enhance the earnings of the Bank. <u>It should be noted that 100% of short-term non-MBS investments that are held in excess of operating liquidity needs improve the Bank's contingency liquidity position.</u> Short-term non-MBS investments generally were made at a 2 to 5 basis point profit spread versus matched-maturity DNs and a 5 to 8 basis point profit spread versus the Bank's cost of short-term portfolio funding in 2002. Earnings from such non-MBS investments result in increased AHP contributions and a higher dividend for members.

Short-term investments can be rolled off in a very short period as advance demand or Bank capital change. Also, if there is an insufficient profit spread for the potential high quality investment on a matched-maturity basis, then no investment is made. Therefore, during periods when DN or other debt costs are relatively high (i.e., close to the rate on the high quality short-term investment), the Bank will not have a sufficient profit potential to make such investments. The trend of increasing agency debt costs compared to money market investment yields will increasingly serve as a "market-based" limitation on this investment activity going forward.

Source of Unsecured Credit for Qualifying Members

Seventeen of the Bank's members currently have credit ratings that qualify them for short-term unsecured credit.

Credit Rating	# of Members	Total Unsecured Credit Limit ($ bil)
AA	1	$1.3
A	13	1.9
BBB	3	0.1
	17	$3.3

The term to maturity for members' unsecured credit limits range up to 9 months. Unsecured overnight federal funds sold to these larger members facilitate their cash management operations (e.g., cash inflows and outflows from check clearing, mortgage origination, mortgage servicing, federal reserve account balance maintenance), which needs are often only determined with certainty late in the business day.

These larger members have access to short-term unsecured credit from sources other than the Bank. If they were not members of the System, these regulated financial institutions would still qualify for access to short-term unsecured credit from FHLBanks. A larger regulated financial institution should have the same access to unsecured credit from the Bank after it becomes a member of the Bank as it had (would have) as a non-member. The Bank's Board of Directors recently affirmed continuing to make short-term unsecured investments available to those members in order to maintain that value-added member service.

Managing Unsecured Credit Risk

San Francisco Risk Management Policy for Unsecured Credit

The San Francisco Bank makes unsecured short-term investments with authorized counterparties and undertakes derivative contracts with authorized counterparties on a fully or partially secured basis. The Bank primarily relies on external credit ratings to determine counterparty credit worthiness and to establish limits for unsecured credit exposure. The potential unsecured credit exposure for a counterparty is also adjusted for the estimated default probability (KMV EDF) and the risk contribution to the overall risk profile of the portfolio modeled using the RiskMetrics portfolio model.

The unsecured credit requirements in the Bank's Risk Management Policy (RMP) are more stringent than the FHFB unsecured credit regulation at CFR 932.9. The RMP limits unsecured short-term exposure to highly rated counterparties in the banking, housing, finance, or securities industries that meet the minimum Tier 1 or tangible capital requirements. The Bank is authorized by the Board of Directors; to undertake Federal Funds transactions with FDIC insured institutions and US branches of foreign commercial banks; to purchase commercial paper, bank notes and thrift notes issued by domestic counterparties with a minimum long-term rating of A, a minimum short-term rating of A-1 / P-1, and a minimum Fitch Individual rating of B, and to undertake derivative transactions with eligible counterparties with ratings of at least A and domiciled in countries with sovereign risk ratings of at least AA. The US branches of foreign commercial banks must be chartered in New York, Illinois or California, See Appendix 1 for additional information.

Changes to the RMP last March in response to the regulation resulted in a substantial reduction in potential unsecured exposure to members and shifted potential unsecured exposure from the smaller or lower rated entities to the larger or higher rated entities. The foreign institutions represent a pool of large highly rated counterparties. Total unsecured exposure to the Money Center, Regional Banks and Large Thrifts decreased from 49% to 26% of the portfolio as of December 2001 and 2002, respectively. The unsecured exposure to foreign institutions increased from 38% to 66% as of December 31, 2001 and 2002, respectively. Unsecured exposure to the securities sector decreased from 6% to nil% of the portfolio as of December 31, 2001 and 2002, respectively. These shifts in the unsecured portfolio are the result of changes in the RMP noted above but also due to the following actions taken by the Bank; the credit limits for certain money center, regional banks, and securities dealers were reduced due to weakening credit quality as evidenced by higher KMV EDFs and negative outlooks and downgrades per the rating agencies, the Credit Department encouraged Treasury to limit activity with the securities dealers due to the challenges faced by that sector, the percentage of the unsecured portfolio represented by A rated counterparties decreased from 45% to 15% as of December 31, 2001 and 2002, respectively, due the FHFB interpretation issued in November 2002 regarding the retained earnings requirement for single A rated counterparties, and more foreign counterparties were utilized as a result of shifting the portfolio out of counterparties with A ratings and in order to increase diversification in the portfolio.

The major policy differences indicated in the table below are as follows:

Minimum Credit Rating:

- The minimum long-term counterparty rating per the RMP is A and per the regulation is BBB.
- The minimum Fitch individual nonmember counterparty rating per the RMP is B. There is no Fitch individual counterparty rating per the regulation.
- The minimum commercial paper rating of A-1/P-1. There is no minimum commercial paper rating per the regulation.

Concentration Risk Limits

- The percentages applied to the lesser of Bank or counterparty capital are lower per the RMP than the regulation.
- The maximum dollar limit of unsecured credit that can be extended to a counterparty is $1 billion. There is no dollar limit in the regulation.
- The percentages applied to the lesser of Bank or counterparty capital and the term to maturity limit for US Branches of Foreign Counterparties are more restrictive than for domestic counterparties per the RMP and per the regulation.
- The percentages applied to the lesser of Bank or counterparty capital for groups of nonmember affiliated counterparties are more restrictive per the RMP than per the regulation.
- The net derivatives credit exposure of the derivative positions for each counterparty is subject to separate dollar limits scaled to long-term ratings. There are no separate dollar limits for the net derivative credit exposure in the regulation.

Tenor Limits

- Terms are scaled down from 9 months based on credit rating per the RMP. There are no term limits per the regulation.

The adjustments made to the RMP to comply with the requirements in the FHFB Unsecured Credit regulation combined with the unsecured credit risk management processes at the Bank reduce the overall risk profile of the unsecured credit portfolio. For an outline of the credit monitoring process see Appendix 2.

COMPARISON OF BANK UNSECURED LIMITS TO LIMITS CONTAINED IN CFR 932.9

Domestic Non-Member Limits
Lesser of Percent of Bank or Counterparty Capital

LT	Term Limit		Total Limit		Dollar Limit		Term to Maturity	
Rating*	Bank	932.9	Bank	932.9	Bank	932.9	Bank	932.9
AAA	15	15	20	30	1000	None	9 mos	None
AA	14	14	18	28	1000	None	6 mos	None
A	9	9	12	18	1000	None	3 mos	None
BBB	0	3	0	6	0	None	0	None

* Non-members rated by Fitch must also have an Individual rating of B or better.
Commercial paper must be rated A-1/P-1 by S&P/Moodys.

US Branches of Foreign Bank Limits*
Lesser of Percent of Bank or Counterparty Capital

	Term Limit		Total Limit		Dollar Limit		Term to Maturity	
LT Rating*	Bank	932.9	Bank	932.9	Bank	932.9	Bank	932.9
AAA	9	15	12	30	1000	None	3 mos	None
AA	9	14	12	28	1000	None	3 mos	None
A	9	9	12	18	1000	None	3 mos	None
BBB	0	3	0	6	0	None	0	None

* Non-members rated by Fitch must also have an Individual rating of B or better.
Commercial paper is not an eligible investment for foreign banks.

Member Limits
Lesser of Percent of Bank or Counterparty Capital

	Term Limit		Total Limit		Dollar Limit		Term to Maturity	
LT Rating*	Bank	932.9	Bank	932.9	Bank	932.9	Bank	932.9
AAA	15	15	30	30	None	None	9 mos	None
AA	14	14	28	28	None	None	9 mos	None
A	9	9	18	18	None	None	9 mos	None
BBB	3	3	6	6	None	None	9 mos	None

* Members rated by Fitch must also have an Individual rating of C or better.

Groups of Non-Member Affiliated Counterparties*
Based on lowest rated affiliate, percent of Bank Capital

LT Rating	On Balance Sheet Limit*		Aggregate Unsecured Limit**		Dollar Limit	
	Bank	**932.9**	**Bank**	**932.9**	**Bank**	**932.9**
AAA	20	None	30	30	None	None
AA	18	None	30	30	None	None
A	12	None	30	30	None	None
BBB	0	None	0	30	None	None

* On Balance Sheet includes all unsecured credit except net derivatives credit exposure. Aggregate unsecured credit to groups consisting substantially of members is limited to 30 percent of Bank capital.
** Includes on- and off-balance sheet exposure.

Estimated Default Probability

Since 1999 the Bank has utilized the service KMV Credit Monitor to monitor estimated default probabilities (EDF) for each counterparty. The EDFs are a good leading indicator of credit deterioration and can provide the Bank additional time to be proactive in mitigating credit risk. The KMV EDF is used to supplement the credit ratings because the agency credit ratings can be a lagging indicator. The KMV Credit Monitor model uses market data and option pricing theory to estimate the market value and volatility of the counterparty assets. This information along with public data regarding the counterparty liabilities is used to calculate the distance to default. The distance to default represents the number of standard deviations the asset value is away from the point where the shareholders would be expected to put the institution to the creditors. The distance to default is then mapped to a historical default database that indicates the probability of default for the counterparty given distance to default.

The Bank considers the EDF for a counterparty relative to its peer group and the trend in the EDF when a counterparty is examined for approval as an authorized counterparty. The EDFs are also used to monitor each counterparty for changes in credit quality in order to anticipate changes in credit rating or to take corrective action regardless of actions by the rating agencies. If a counterparty EDF exceeds certain thresholds, the Credit Department prepares and the Credit Committee reviews a credit report of the counterparty for possible action. Note that the Bank also monitors credit rating migration, stock prices, industry sectors and market news to identify counterparties and industry sectors that require a examination by the Credit Department and Credit Committee. The template for the credit report includes examination of historical financial statements and other public information, credit rating migration, credit spreads for counterparty debt relative to its peer group, trend and absolute level of EDF, peer data, and market and news information. Based on this process the Bank has been able to take certain credit risk mitigation actions in advance of credit rating actions by the rating agencies.

The credit ratings for the Bank's authorized counterparties are attached at Appendix 3. The median KMV EDFs for the industry sectors represented by authorized counterparties are as follows: foreign institutions – 9 basis points, money center banks – 50 basis points, regional banks – 29 basis points, and securities dealers – 45 basis points. The median KMV EDF for the S&P population of A rated counterparties is 23 basis points. The low median KMV EDF is another indicator of the shift in the Bank and FHLBank System unsecured portfolios to the higher credit quality and diversification benefit represented by foreign institutions. As a general comment regarding diversification benefit, for many of the foreign institutions (European), the U.S. market has been the source of their asset quality deterioration and losses.

Unsecured Credit Portfolio Modeling Utilizing RiskMetrics

The agency credit ratings and the KMV EDFs provide the Bank the capacity to manage the credit risk one counterparty at a time through the individual and group exposure limits. Lower credit ratings or higher KMV EDFs result in lower credit limits. Individual counterparty limits can limit the exposure to loss from any one counterparty and can limit the potential risk profile of the portfolio, but it does not address the added dimension regarding the risk that a counterparty can contribute to a portfolio given the correlation of default for that counterparty relative to other counterparties in the portfolio. In order to better understand the diversification benefit and the risk that each counterparty contributes to the overall unsecured portfolio and the probability of a large unexpected loss during the invested time horizon, the Bank utilizes the RiskMetrics Credit Manager portfolio model combined with the KMV EDFs.

The Bank uses RiskMetrics to estimate the potential portfolio loss at a specified probability over the invested time horizon (period) and to estimate each counterparty's relative contribution to that potential loss. The Bank monitors the estimated dollar amount of loss at the 5 basis point probability. In other words, there is a chance in one period out of every 2000 periods that the losses could exceed a certain dollar amount. The period is the invested time horizon or the term to maturity for the investment. This represents the risk of a catastrophic event, sometimes referred to as the tail risk in the probability distribution. The RiskMetrics model can identify the source of the portfolio risk by counterparty, industry and country. Based on the results of the RiskMetrics model the credit department consults with the treasury department to develop strategies to mitigate the sources of portfolio risk. Such strategies can include lower limits or terms to certain counterparties and industry sectors, or informally shifting the portfolio to different counterparties in order to increase the diversification benefit, reduce the dollar weighted average EDF or term of the portfolio. The RiskMetrics model has also been utilized to understand the potential impact of changes in risk management policies, financial strategies, and economic environment on the risk profile of the portfolio.

The Bank has utilized RiskMetrics to perform portfolio analysis for the aggregate FHLBank System unsecured portfolio. The FHLBank System credit officers have discussed how the FHLBanks might use such portfolio modeling for the combined unsecured portfolio in order to coordinate and develop strategies to reduce portfolio risk for the System as a whole.

<u>Domestic Branches of Foreign Banks</u>

The changes to the Risk Management Policy required by the FHFB Unsecured Credit regulation at CCR 932.9 has resulted in an increase in the proportion of the unsecured credit portfolio invested with foreign banks for the San Francisco Bank and the FHLBank System as a whole. The foreign banks authorized for unsecured credit by the Bank (limited to Federal Funds) have a minimum long-term credit rating of A, a minimum Fitch Individual long-term rating of B, and must be undertaken with a domestic branch of the foreign bank. The shift to long-term credit ratings, lower counterparty percentage limits applied to counterparty capital, and the elimination of the minimum Fitch Individual rating operates to shift the unsecured portfolio for the FHLBank System to large and highly rated institutions. The foreign institutions are large and highly rated. The annual average default rate for investment grade European issuers was 20 basis points compared to 70 basis points for U.S. issuers during the period 1985-2001 (Moodys Default and Recovery Rates of European Corporate Bond Issuers 1985-2001). The dollars in the aggregate FHLBank portfolio shifted to higher rated counterparties even though there are three foreign counterparties in the aggregate portfolio as of December 31, 2002 that have Fitch Individual ratings less than C. The removal of the Fitch Individual rating requirements did not cause a decline in the overall credit quality of the aggregate portfolio.

The Bank believes that Federal Funds transactions with the domestic branch of a Foreign Bank can reduce the risk in default compared to dealing directly with the Foreign Bank. The supervision and regulation of domestic branches of foreign banks is extensive and comparable to the supervision of domestic banks. Additionally, the state regulatory authorities provide additional protections to creditors of the domestic branch in the event of insolvency of the branch or foreign bank parent company that are not be available if the credit was extended directly to the foreign bank. See Appendix 1 for a more detailed discussion.

Observations Regarding FHLBank System Unsecured Portfolio Risk

The Bank believes that the size of the nonMBS investment portfolio (secured and unsecured investments) needs to approximate two to three times the Bank's capital in order to meet the business objectives discussed above. Compared to some of the Banks in the FHLBank System, besides meeting operating and member liquidity needs, the nonMBS investment portfolio also enables the Bank to utilize portfolio funding to reduce the cost of funds.

The Bank believes that its risk management process for unsecured credit is safe and sound and is more stringent than the requirements in the FHFB unsecured credit regulation at CFR 932.9. In addition to the agency credit ratings the Bank utilizes other sources of credit information and credit portfolio modeling to better understand the sources of risk at the counterparty level and the portfolio level.

The Bank is willing to participate in a FHLBank System effort to monitor and measure the risk profile of the aggregate FHLBank System unsecured credit portfolio on a timely basis. Such an effort may provide the Banks the opportunity to consult regarding strategies to reduce any concentration and aggregate portfolio risk and to coordinate risk mitigation actions in response to adverse capital market events.

Appendix 1

<u>Regulation, Supervision, and Insolvency Regime Applicable to Domestic Branches of Foreign Financial Institutions</u>

I. Key Regulations

Domestic branches of foreign banks are subject to extensive regulation that is comparable to the regulation and supervision of domestic banks. The Federal Reserve and either the OCC, for federally chartered branches, or the state regulatory authority for state-chartered branches regulates domestic branches of foreign banks. The following summarizes key safety and soundness regulations affecting federal and state-chartered branches (latter limited to New York, California, and Illinois):

<u>Asset Pledge Requirement</u>

OCC Regulations: federally chartered branches are required to maintain "capital equivalency deposits" equal to the greater of: 1) the amount of capital that would be required of a national bank organized at that location; or, 2) 5 percent of third party liabilities. These deposits are placed in safekeeping at a depository bank (FRB member) pursuant to a pledge agreement prescribed by the OCC. The deposits consist of high-grade investment securities and may be used to compensate third party creditors in the event of default.

New York State Banking Department (NYSBD) Regulations: New York state-chartered branches are required to pledge assets with a depository approved by the NYSBD in an amount equal to the greater of: 1) 5 percent of third party liabilities, excluding the branch's International Banking Facility (IBF); 2) 1 percent of third party liabilities including the branch's IBF; or, 3) $ 1 million.

California Department of Financial Institutions: California state-chartered branches are required to pledge eligible assets with an approved depository in an amount equal to the greater of: 1) 5 percent of adjusted liabilities; or, 2) $ 2 million.

Illinois Commissioner of Banks and Real Estate: the Illinois Commissioner may impose asset pledge requirements on state-chartered branches on a discretionary basis.

<u>Asset Maintenance Requirements</u>

To further protect depositors and creditors, a federal or state-chartered branch may also be subject to an asset maintenance requirement:

OCC Regulations: federally chartered branches are subject to asset maintenance requirements on a case-by-case basis for "prudential, supervisory, or enforcement reasons". Eligible assets must be maintained at a specified percentage of third party liabilities, not less than 105 percent, and must exclude net amounts due from affiliates.

New York State Banking Department (NYSBD) Regulations: New York state-chartered branches are subject to asset maintenance requirements on a case-by-case basis if there is a perceived weakness in the financial condition of the parent bank or the home country in which it operates that could adversely affect the New York office. Eligible assets must be maintained at a specified percentage of third party liabilities and must exclude net amounts due from affiliates.

California Department of Financial Institutions: the California Commissioner has the authority to require state-chartered branches to hold eligible assets up to 108 percent of adjusted liabilities in order to maintain sound financial condition.

Illinois Commissioner of Banks and Real Estate: the Illinois Commissioner may impose an asset maintenance requirement on state-chartered branches on a discretionary basis up to 108 percent of liabilities.

<u>Lending Authority</u>

Both federal and state-chartered branches possess investment and loan authorities similar to those of domestic commercial banks. Under FRB Regulation K, the legal lending limit is 15 percent of capital to any one borrower, plus an additional 10 percent if secured. For purposes of this limit, loans made by all U.S. branches are aggregated and compared to parent bank capital

II. Supervision

All branches of foreign banks are required to have on-site exams on an annual basis. Exams are conducted by either the licensing authority (OCC or state regulator), the Federal Reserve, or jointly. The evaluation of foreign bank branches is conducted at three levels:

1) Individual branch

The examination of individual branches covers the following areas (ROCA system):

- Risk Management: measures the branch's ability to identify, measure, and control all risks including credit, market, liquidity, operational, and legal risks.
- Operations: measures the effectiveness of the branch's operational, accounting, and financial controls.
- Compliance: measures the branch's compliance with state and federal regulations, reporting and supervisory requirements, and effectiveness of compliance procedures.
- Asset Quality: level, severity, and distribution of the branch's classified assets, level and composition of nonaccrual and reduced rate assets. This factor is not a significant factor in the overall branch assessment if support from the parent bank is considered strong.

Branches are assigned a composite rating of 1 (strongest) to 5 (weakest).

2) All U.S. Operations of the Foreign Bank

For those foreign banks with branches supervised by more than one agency (i.e., multi-state operations), the Federal Reserve consolidates all individual branch examinations into an annual assessment of the combined U.S. operations of foreign banks. The assessment includes a review of: 1) all elements of the ROCA rating system for the combined operations; 2) quality of risk management oversight employed by all levels of management; and, 3) the examinations of all vehicles of the foreign bank conducted during the year. This assessment leads to the assignment of a composite rating on a 1 (strongest) to 5 (weakest) scale for combined U.S. operations. This assessment apprises the various supervisory authorities of the condition of all the U.S. entities of a foreign bank and is one of the key elements used in determining a branch's examination scope and timing.

3) Foreign Bank

An evaluation of the foreign bank itself is conducted annually by the Federal Reserve in order to further assist in decisions regarding the scope and frequency of examinations and in implementing supervisory follow-up actions for the U.S. operation. This assessment, known as a Strength-of-Support Assessment (SOSA), focuses on the ability of the foreign bank to support its U.S. operations. Included in this review are:

- The financial profile of the foreign bank, including capital, profitability, asset quality, and liquidity;
- The system of supervision in the home country;
- The demonstrated capabilities of the home country in dealing with banking problems;
- The degree of transfer risk associated with the home country; and,
- The identification of any managerial or operational control risks to the U.S. operations.

Using the SOSA, the foreign bank is rated on an A (strongest) to E (weakest) scale.

III. Enforcement Actions

Federal and state banking supervisors may issue enforcement actions against foreign banks and their U.S. branches if the bank or branch is determined to be operating in an unsafe or unsound manner. These actions may be formal (i.e., C&D's) or informal (i.e., Commitment Letters, MOU's). In 1991, the Federal Reserve was granted additional enforcement powers including the ability to terminate a foreign bank's U.S. operations and the ability to levy civil money penalties.

IV. Insolvency Regime

The San Francisco Bank has researched various state regulations related to the treatment and position of a fed funds creditor of a U.S. branch of a foreign bank in the event of the insolvency of that foreign bank. The research was limited to state-chartered branches located in New York, California, and Illinois, where the majority of U.S. operations of foreign banks are located. The following summarizes the results:

> a. Separate Liquidation ("ring-fencing") – in the event of the insolvency of the parent foreign bank, would the state regulator: (i) liquidate the branch separately from the parent's insolvency proceeding; and, (ii) marshal the assets of the branch for the benefit of the branch's domestic creditors?
>
> *New York, California, Illinois:* *Yes*

b. What priority would an unsecured investment claim (e.g., Fed funds) receive relative to other claims against the branch?

New York:	*An unsecured investment claim would be paid after administrative expenses of receiver and deposits.*
California:	*An unsecured investment claim would be paid after costs of liquidation, special priority claims, and depositors.*
Illinois:	*Other than pledged assets on deposit with FRB Chicago, an unsecured investment claim would have parity with other unsecured claims.*

c. Would the claims of creditors of the branch receive priority over the claims of other creditors of the parent bank or other branches, offices, agencies or affiliates, against branch assets?

New York:	*Claims of other creditors excluded.*
California:	*Branch creditors get priority but claims of other creditors can be considered.*
Illinois:	*Branch creditors get priority.*

d. Do state-based creditors (as opposed to other creditors of the branch that are located outside the state) get any special treatment?

New York, California, Illinois: *No*

e. If the parent bank or another branch, office, agency or an affiliate of the branch has a claim against the branch, is such a claim subordinated to the claims of other creditors of the branch, or excluded altogether?

New York:	*Claims of affiliates and other branches/agencies/offices excluded.*
California:	*No specific exclusion/subordination for claims of affiliates and other branches/agencies/offices.*
Illinois:	*Claims of affiliates and other branches/agencies/offices specifically excluded for assets on deposit with FRB Chicago. Unclear as to other assets.*

f. Assets Available in Liquidation: is the state regulator limited to the assets of the branch or does it have authority to liquidate other available assets of the parent bank or another branch, office, agency or affiliate, located elsewhere in the state or beyond, to satisfy branch creditor claims?

New York:	*Authority to liquidate branch assets plus all other in-state assets.*
California:	*Authority to liquidate branch assets plus all other in-state assets.*
Illinois:	*Authority to liquidate branch assets. Not clear as to other in-state assets.*

V. Summary and Conclusion

In summary, we believe that the supervision and regulation of domestic branches of foreign banks is extensive and comparable to the supervision of domestic banks. Additionally, the state regulatory authorities provide additional protections to creditors of the domestic branch in the event of insolvency of either the branch or the foreign bank parent company that would otherwise not be available if the credit was extended directly to the foreign bank.

Appendix 2

Credit Risk Monitoring for Authorized Unsecured Credit Counterparties

Credit Review

All new counterparties and approved counterparties exceeding monitoring triggers are subject to a credit review. Monitoring triggers are based on KMV default probabilities, credit spreads, and rating migration.

Credit Review Considerations:

- Ratings, ratings history, and ratings outlook
- KMV Expected Default Frequency*: level relative to rating peer group, trend, reasons for changes
- Credit Spreads: determine whether there is a risk premium when compared to similarly rated debt issues
- History and ownership structure
- Credit support/guarantees
- Operating strategy/current business
- Current position in industry
- Financial results
- Press releases
- Bloomberg research

Ongoing Monitoring

<u>Monitoring</u>

- Daily
  - Compliance with credit limits
  - Credit rating changes
  - Bloomberg and S&P, Moody's, and Fitch subscriptions
  - New sources

- Intramonth
  - Collateral calls in response to derivative settlement and accruals or in response to changes in yield curve
  - Update KMV EDFs in response to market volatility
  - Call for collateral for derivatives transactions every monthend, with more frequent calls as needed based on stress analysis and monitoring of interest rate movements and cash settlements beyond established triggers.

- Monthly
  - KMV EDFs updated for all counterparties and counterparties are selected for review based on established triggers.
  - Long-term rating migration monitored for all counterparties and counterparties are selected for review based on established triggers.
  - Credit spreads monitored for counterparties with no EDF.

- Derivatives portfolio valued to determine monthend net derivatives credit exposure compliance with dollar limits and collateral calls.
- Evaluate impact of any systemic risk and risk mitigation.

- Quarterly
  - Prepare credit reviews and recommend appropriate action for counterparties exceeding monthly monitoring triggers.
  - Review counterparty industry sectors.
  - Verify all counterparty ratings to source documents.
  - Update counterparty capital numbers and counterparty dollar limits.

<u>Data Sources</u>

- Daily
  - Office of Finance
  - Rating services
  - Bloomberg

- Monthly
  - KMV EDFs

- Quarterly
  - Fitch sovereign ratings list
  - Fitch International Ratings Review (website)
  - S&P Global Ratings Handbook
  - S&P RatingsDirect (website)
  - Moodys Global Credit Research (website)
  - FDIC tapes of CALL report.
  - Thrifts and Bank Holding Companies: Sheshunoff
  - Securities Companies, Finance Companies, Insurance Companies: SEC's Edgar Database.
  - Broker/Dealers: FOCUS Reports or semiannual statements from counterparty

- <u>Annual</u>
  - Derivative Product Companies (DPCs): direct from counterparty
  - Foreign Banks: Fitch Rating Review (website)

Appendix 3

Authorized Counterparties	**Fitch Stand Alone**	**Fitch**	**S&P**	**Moodys**	**Lowest Rating**
Foreign Bank					
Australia: AA+					
Australia & New Zealand Bank Group	B	AA-	AA-	AA3	AA
Commonwealth Bank of Australia	A/B	AA+	AA-	AA3	AA
National Australia Bank	B	AA	AA	AA3	AA
Westpac Banking Corp	B	AA-	AA-	AA3	AA
Belgium: AA					
DEXIA Bank	B	AA+	AA	AA2	AA
Canada AA+					
Bank of Montreal	B	AA-	AA-	AA3	AA
Bank of Nova Scotia	B	AA-	A+	AA3	A
Canadian Imperial Bank of Commerce	B	AA-	A+	AA3	A
National Bank of Canada	B	A+	A	A1	A
Royal Bank of Canada	A/B	AA	AA-	AA2	AA
Toronto Dominion Bank	B	AA-	A+	AA3	A
Denmark AA+					
Danske Bank	B	AA-	AA-	AA2	AA
Finland AAA					
Nordea Bank Finland	B	AA-	A+	AA3	A
France AAA					
BNP Paribas	B	AA	AA-	AA2	AA
Credit Agricole Indosuez		AA+	AA	AA2	AA
Societe Generale	B	AA	AA-	AA3	AA
Italy AA					
UniCredito Italiano	B	AA-	AA-	AA2	AA
Netherlands AAA					
Rabobank Nederland	A/B	AA+	AAA	AAA	AA
Spain AA+					
Banco Bilbao Vizcaya	B	AA-	AA-	AA2	AA
Sweden AA+					
Svenska Handelsbanken	B	AA-	A+	AA2	A
Switzerland AAA					
UBS AG	B	AAA	AA+	AA2	AA
United Kingdom AAA					
Bank of Scotland	A/B	AA+	AA	AA2	AA
Barclays Bank PLC	B	AA+	AA	AA1	AA
Lloyds TSB Bank	A	AA+	AA	AAA	AA
Royal Bank of Scotland	B	AA	AA-	AA1	AA
Standard Chartered Bank	B	A+	A	A2	A

Finance Company					
American Express Credit Corp		A+	A+	AA3	A
General Electric Capital Corp			AAA	AAA	AAA
American General Finance Corp		A+	A+	A1	A
GE Capital Int'l Funding			AAA	AAA	AAA
Money Center					
Citicorp	A	AA+	AA-	AA1	AA
Bank of New York	B	AA-	AA-	AA2	AA
Citibank, NA	A	AA+	AA	AA1	AA
Bank of America, NA	A/B	AA	AA-	AA1	AA
Bank of America Corporation	A/B	AA-	A+	AA2	A
Citigroup	A	AA+	AA-	AA1	AA
Regional Bank					
Citibank, FSB	A	AA+			AA
Household Bank, FSB	B	A	A-	A2	A
American Express Centurion Bk	B	A+	A+	AA3	A
Banco Popular De Puerto Rico	B	A	A-	A2	A
Compass Bank	B	A-	A-	A1	A
Comerica Bank	B	A+	A	A1	A
Regions Bank	A/B	A+	A+	AA3	A
Bank One, NA (IL)	B	A+	A+	AA2	A
National City Bank of Kentucky	A/B	AA-	A+	AA3	A
First Tennessee Bank NA	B	A	A	A1	A
Mellon Bank NA	A/B	AA-	AA-	AA3	AA
Mercantile-Safe Deposit &Trust			AA-	AA3	AA
Manufacturers&Traders Trust Co	B	A	A-	A2	A
National Bank of Commerce	B	A-	A	A2	A
Keybank NA	B	A	A	A1	A
State Street Bank & Trust Co (MA)	A	AA+	AA	AA2	AA
Suntrust Bank	A/B	AA-	AA-	AA2	AA
Wells Fargo Bank, NA	A	AA	AA-	AA1	AA
Washington Mutual Bank	B	A	A-	A2	A
National City Bank of MI/Il	A/B	AA-	A+	AA3	A
Wachovia Bank, NA	B	A+	A+	AA2	A
Union Bank of California	B	A	A-	A1	A
Bank One, NA (OH)	B	A+	A+	AA2	A
RBC Centura Bank	B	AA-	A+	AA3	A
Harris Trust & Savings Bank	B	AA-	AA-	AA3	AA
M & I Marshall & Ilsley Bank	A/B	A+	A+	AA3	A
Northern Trust Company	A	AA	AA-	AA3	AA
Wells Fargo Bank Minnesota, NA	A	AA	AA-	AA1	AA
Southtrust Bank, NA	B	A	A	A1	A
US Bank, NA	A/B	A+	A+	AA2	A
National City Bank, PA	A/B	AA-	A+	AA3	A
Wilmington Trust Co	A/B	A+	A+	A2	A
Washington Federal Savings	B	A-			A
Columbus Bank & Trust Co	B	A	A+	A1	A

Comerica Bank-Calif	B	A+	A	A1	A
Branch Banking and Trust Co.	B	A+	A+	AA3	A
Wells Fargo Bank Northwest, NA	A	AA	AA-	AA1	AA
UMB Bank, NA	B	A+	A	A2	A
National City Bank of Indiana	A/B	AA-	A+	AA3	A
HSBC Bank USA	B	AA-	AA-	AA3	AA
Comerica Bank-Texas	B	A+	A	A1	A
Fifth Third Bank (OH)	A	AA-	AA-	AA1	AA
Fleet National Bank	B	A	A+	AA3	A
Wells Fargo & Co.	A	AA	A+	AA2	A
Charter One Bank, NA	B	A-	A-	A2	A
US Bancorp	A/B	A+	A	AA3	A
Banc One Financial Corp	B	A+	A	AA3	A
Boston Safe Deposit & Trust Co	A/B	AA-	AA-	AA3	AA
Fifth Third Bank (MI)	A	AA-	AA-	AA1	AA
National City Bank	A/B	AA-	A+	AA3	A
Trustmark National Bank	B	A-	A-	A2	A
Huntington National Bank	B	A	A	A1	A
Associated Bank NA	B	A-	A-	A2	A
B-One Australia Ltd	B	A+	A+	AA2	A
HSBC USA Inc.	B	AA-	A+	A1	A
Securities Dealer					
Bear Stearns Companies, Inc	B	A+	A	A2	A
Goldman Sachs Group, LP	B	AA-	A+	AA3	A
Morgan Stanley	B	AA-	A+	AA3	A
Merrill Lynch & Co, Inc	B	AA-	A+	AA3	A
Salomon Smith Barney Holdings Inc	B	AA+	AA-	AA1	AA
Lehman Brothers Holdings Inc	B	A+	A	A2	A
Member					
EastWest Bank					298
Washington Mutual Bank, FA	B	A	A-	A2	A
Cathay Bank					298
Chinatrust Bank (USA)					173
World Savings Bank, FSB			AA-	AA3	AA
Bank of the West	B/C	A+	A+	AA3	A
San Diego National Bank					281
Farmers & Merchants Bank of LB					300
Westamerica Bank	A/B	A-			A
City National Bank	B	BBB+	BBB+	A3	BBB
National Bank of Arizona	B	A-			A
California National Bank					251
Citizens Business Bank	B	BBB+			BBB
The Mechanics Bank					253
First Federal Bank of CA, FSB					270
Pacific Capital Bank, NA				A3	A
Hanmi Bank					246